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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/067,795	04/28/98	DOVEK	3123-276

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EXAMINER
KORZUCH, W

ART UNIT	PAPER NUMBER
2754	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/067,795

Applicant(s)
Dovek et al

Examiner
William Korzuch

Group Art Unit
2754



☐ Responsive to communication(s) filed on _____

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-29 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-29 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the different cross-sectional widths set forth in claims 8, 9, 22 and 23 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Specification

2. The specification is objected to as failing to comply with 37 CFR 1.84(p)(5) because it does not include the following reference sign(s): Letter A as shown in Figures 1 and 2; numeral 206 as shown in Figure 9; and numerals 300, 302, 308, 310, 312, 314 and letter C' as shown in Figure 10. Correction is required.

Claim Objections

3. Claims 21-26 and 28 are objected to because of the following informality: In claim 21, line 6, "a" should be deleted. Appropriate correction is required.

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Claim Rejections - 35 USC § 112

4. Claims 4, 10 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 4, line 3, "Lorentzian-type" is vague and indefinite.

In claim 10, line 2, "the first, second and third pole pieces" are unclear and confusing as to whether they are part of the write element and yoke in claim 1 or in addition to the write element and yoke.

In claim 29, line 2, "virtual contact" is vague and indefinite.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 1-4, 6, 7, 10, 11, 13-15, 17-19, 21, 24-27 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al (U.S. Patent 5,486,967).

With regard to claims 1, 17, 27 and 29, Tanaka et al shows in Figure 47 a head for use in a magnetic recording system including a magnetic media (912) with perpendicular magnetic polarity transitions written thereon, the head for transferring data between the magnetic media and an exterior environment, the head including: a write element (924) for inducing the perpendicular magnetic polarity transitions into a surface of the magnetic media during a write operation; and a yoke (920a) disposed within the write element, the yoke having a read gap (921) for sensing the perpendicular magnetic polarity transitions.

With regard to claims 2, 4 and 18, Tanaka et al further shows a magnetoresistive element (907) mounted in a flux flow path of the yoke.

With regard to claims 3 and 19, Tanaka et al further shows the read gap of the yoke is disposed at a first distance from the magnetic media and the magnetoresistive element is disposed at a second distance from the magnetic media, the first distance being smaller than the second distance.

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With regard to claim 6, Tanaka et al further shows the write element includes a write pole (924) having a leading edge, wherein the leading edge and the read gap are separated by a distance.

With regard to claim 7, Tanaka et al further shows that the write element includes a non-magnetic spacer (i.e., between 923 and 924) for substantially preventing flux flow through the write element during a read operation.

With regard to claim 10, Tanaka et al further shows first (920a), second (920b) and third (924) pole pieces that are in a common plane with the read gap.

With regard to claim 11, Tanaka et al further shows the write pole is integral with the yoke.

With regard to claims 13, 14, 21, 24 and 25, Tanaka et al further shows the write element includes first and second write poles (924) and a coil element (925) operatively coupled to the first and second write poles for writing to the magnetic media.

With regard to claims 15 and 26, Tanaka et al further shows that the yoke is physically smaller than the write element.

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Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hesterman et al (U.S. Patent 5,434,733) in view of Hamilton (U.S. Patent 4,423,450).

With regard to claims 1, 17, 27 and 29, Hesterman et al shows in Figure 1 a head (10) for use in a magnetic recording system including a magnetic media with magnetic polarity transitions written thereon, the head (10) for transferring data between the magnetic media and an exterior environment, the head including: a write element (12) for inducing the magnetic polarity transitions into a surface of the magnetic media during a write operation; and a yoke (24) disposed within the write element, the yoke having a read gap (15) for sensing the magnetic polarity transitions. Hesterman et al does not show that the media is a perpendicular media. Official Notice is taken that perpendicular magnetic media are old and well known in the art.

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Additionally, Hamilton teaches that ring or thin film heads can be used to record as well as read data on perpendicularly oriented media. This is done by reducing the spacing between the head and the medium. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the head of Hesterman et al to record on perpendicular media as taught by Hamilton. The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to use the head of Hesterman et al to record on perpendicular media as taught by Hamilton since perpendicular media increases the amount of information that can be stored due to its higher density.

With regard to claims 2, 4 and 18, Hesterman et al further shows a magnetoresistive element (18) mounted in a flux flow path of the yoke.

With regard to claims 3 and 19, Hesterman et al further shows the read gap of the yoke is disposed at a first distance from the magnetic media and the magnetoresistive element is disposed at a second distance from the magnetic media, the first distance being smaller than the second distance.

With regard to claim 5, Hesterman et al further shows the head is a planar head.

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With regard to claim 6, Hesterman et al further shows the write element includes a write pole (32) having a leading edge, wherein the leading edge and the read gap are separated by a distance.

With regard to claim 7, Hesterman et al further shows that the write element includes a non-magnetic spacer (19) for substantially preventing flux flow through the write element during a read operation.

With regard to claim 8, Hesterman et al further shows that the write element includes first and second write poles (32,31), wherein the first and second write poles have first and second cross-sectional widths, respectively, the first cross-sectional width (i.e., the width of 32 at write gap 17) being larger than the second cross-sectional width (i.e., the width of 31 at read gap 15).

With regard to claim 9, Hesterman et al does not show that the first cross-sectional width is 10-100 times larger than the second cross-sectional width. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the first cross-sectional width to be 10 times larger than the second cross-sectional width. The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to make the first cross-

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sectional width to be 10 times larger than the second cross-sectional width so that the write gap is much wider than the read gap. This would ensure that the read gap is spaced from the edges of the track which would eliminate noise from being picked up by the read gap. Furthermore, Hesterman et al teaches that the read and write gap lengths and widths can be separately optimized for their own respective functions. If Applicant is relying on the different cross-sectional widths for patentability, then their criticality must be established.

With regard to claim 10, Hesterman et al further shows first (30), second (31) and third (32) pole pieces that are in a common plane with the read gap.

With regard to claim 11, Hesterman et al further shows the write pole is integral with the yoke.

With regard to claim 12, Hesterman et al further teaches (Column 5, lines 13 and 14) that the leading edge of the write pole is separated from the read gap by 3 micron.

With regard to claims 13, 14, 21-25 and 28, Hesterman et al further shows the write element includes a first write pole (31), a second write pole (32) and a coil element (13) operatively coupled to the first and second write poles for writing to the magnetic media.

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With regard to claims 15 and 26, Hesterman et al further shows that the yoke is physically smaller than the write element.

With regard to claim 16, Hesterman et al further teaches (Column 5, lines 8 and 9) a read gap of 0.2 microns.

With regard to claim 20, Official Notice is taken that conventional disk drives pass readback signals through a standard high pass filter. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to send the readback signal of Hesterman et al in view of Hamilton through a high pass filter. The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to send the readback signal of Hesterman et al in view of Hamilton through a high pass filter so that the lower frequencies that generate the higher amplitude values on both sides of the peak of the readback signal can be removed and thus an ideal Lorentzian pulse shape can be obtained.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Das et al (U.S. Patent 5,111,352), Bajhorek et al (U.S. Patent 5,560,097) and Shinohara et al (U.S. Patent 5,726,839) are

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cited to show magnetic heads that record on perpendicular media and use an MR sensor to read the media.

Simmons et al (U.S. Patent 5,742,457) is cited to show a head that shares a pole between the read and write elements.

8. Any inquiry concerning this communication should be directed to William R. Korzuch at telephone number (703) 305-6137.

William R. Korzuch
WILLIAM R. KORZUCH
PRIMARY EXAMINER

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April 23, 1999